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Generalizations about effects of social recognition upon plans of talented students to seek advanced training. Motivation to seek advanced degree is seen as function of: "Evaluation of self relative to others, ability to finance costs of higher education, ability to gain admission to preferred education programs, and perception of social support among others for intellectual achievement. Each of these dispositions is hypothetically related to characteristics of the recipient of recognition. The majority of the predictions derived from the theory were confirmed in a study of effects of recognition in a national scholarship competition."

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THE RECOGNITION OF EXCELLENCE[1]

Donald L. Thistlethwaite

National Merit Scholarship Corporation

Society has a variety of devices for recognizing intellectual achievement. High schools frequently publish Honor Rolls, award medals to high achievers, and invite valedictorians to give commencement speeches. Special programs such as the Westinghouse Science Talent Search and the National Merit Scholarship Program attempt to identify and reward promising young scholars and scientists. Colleges award scholarships, name undergraduates to the Dean's List, and elect top students to honorary fraternities. But despite the universality of recognition awards little is known about their effects. Do such awards stimulate the recipient to strive for even greater achievement? Does the image of the achiever with high visibility cause others to aspire to similar accomplishments? How can we improve programs for identifying and recognizing intellectual excellence so that we may maximize the desired outcomes?

Such questions have recently assumed added importance. Nations, governments, universities, high schools, and even elementary schools increasingly find themselves participating in the drive to develop scientific talent. The scientific events of 1957 served to dramatize the penetration of science into politics, and to make clear that the development of human resources has become a national problem. As a result, there is renewed interest in discovering methods of motivating the talented person to seek the kinds of educational experience which will help him to realize his potentialities.

Previous studies have demonstrated that recognition awards sometimes increase the educational motivation of talented students (7, 12). However, no attempt has yet been made to conceptualize the varied effects that social recognition may have or to predict the types of students upon which such awards will have their greatest impact. Such a conceptualization would be useful in designing improved programs for recognizing and stimulating excellence.

The purpose of this paper is to present a number of generalizations about the effects of social recognition for outstanding intellectual achievement and to consider the adequacy of these generalizations in interpreting the results of surveys of students who received recognition in scholarship competitions.

Generalizations about the Effects of Social Recognition

The following section contains an enumeration of generalizations and a brief discussion of related theory and findings. In the later sections, the methods

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and results of a new survey used to test the hypotheses are described.

It will be helpful, in considering the following generalizations, to imagine a specific type of recognition award. Let us assume that we are dealing with an honorary award given to students for outstanding performance on college aptitude tests given in a scholarship competition. In addition assume that, though the winners of this award receive no monetary stipend from the donor, they are publicizecd and as a result receive social recognition and possibly even prizes or scholarships from other donors. This model has the virtue of focussing upon the effects of recognition during a critical period in the education of the student, a period in which a considerable number decide not to continue their schooling.

Two types of hypotheses have been formulated: the first type, called dispositional hypotheses, relate postulated dispositions to each other: changes in one disposition (e.g., motivation to seek advanced training) as a consequence of recognition are said to be a function of changes in other dispositions (e.g., in self-evaluative attitudes); the second type, called interaction hypotheses, relate changes in the person's dispositions to antecedent conditions and environmental events. In a sense, both types of hypotheses deal with interactions, for they predict that the effects of recognition will vary according to the person's status on a related variable. However, since hypotheses in the second group are linked to environmental events, they are considered lower-order hypotheses.

Dispositional Hypotheses

Social recognition for outstanding intellectual achievement, hereafter called Recognition, will increase the recipient's (S's) motivation to seek advanced training when Recognition leads to:

1. improved evaluation of self relative to others,

2. increased ability to finance the costs of such training,

3. increased ability to gain admission to preferred educational programs and institutions, or

4. increased social support among others for intellectual achievement.

Interaction Hypotheses

1. Recognition will affect S's knowledge of his capacities and his evaluation of self relative to others when S:

   a. has had little opportunity to evaluate his abilities by objective measures,

   b. is a "late bloomer" -- i.e., when prior to Recognition S had a relatively undistinguished record of academic achievement, -- or

c. is partially aware of deficiencies in particular skills and abilites.

2. Recognition will increase S's ability to finance college costs by aiding S to obtain scholarship assistance when S is:

   a. from a home or community of relatively low socio-economic status, or

   b. planning to attend a high-cost college.

3. Recognition will increase S's ability to gain admission to preferred educational programs and institutions when S is:

   a. from a home or community of relatively high socio-economic status, or

   b. planning to attend a high-cost college.

4. Recognition will produce increased social support for S's training when:

   a. others' expectations of S's intellectual performance are exceeded, or

   b. others who have the power to assist or thwart S's plans to seek advanced training are not already committed to support such plans.

Previous theory and research

Since the hypotheses will be frequently referred to, it is convenient to use codes for the hypotheses: thus "D-1" will refer to the first dispositional hypothesis, "I-1a" will refer to the first interaction hypothesis, etc. Also, because of the parallelism of the two classes of hypotheses -- i.e., because the first group of interaction hypotheses deals with the same construct as the first dispositional hypothesis, etc. -- it is convenient to discuss together the evidence relevant to statements having the same ordinal position in the statement of hypotheses. Thus D-1 and I-1a-c are considered as the first group; D-2 and I-2a-b, the second; etc.

Improved evaluation of self relative to others. Holland and Stalnaker have reported that recognition given to near-winners in the National Merit Scholarship competition provides the recipient with considerable emotional support (7). Comments such as the following were volunteered by one out of every 10 of the respondents: "...gave me the confidence to set a higher goal for myself and the determination to succeed"; "Bolstered my ego"; "...stimulates worthy students to attend college." Such effects, which imply hypothesis D-1, should be more frequent among those who have doubts about their abilities. Festinger has postulated that "there exists, in the human organism, a drive to evaluate his opinions and his abilities," and "to the extent that objective, nonsocial means are not available, people evaluate their opinions and abilities by comparisons respectively with the opinions and abilities of others" (4). Thus recognition awards, of the kind specified in our paradigm, should be particularly self-informative when the student has had little opportunity to participate in, or benefit from, testing and guidance programs. Specifically, students' self concepts should be affected by participating

in scholarship testing programs primarily in those schools which do not offer other testing opportunities (hypothesis I-1a). Thistlethwaite (12) found that the "late bloomer", as a consequence of recognition, changes more in his attitudes than does the student with a consistently distinguished record of high school achievement. Test performance at a markedly higher level than his previous achievements should have the effect of improving the late bloomer's confidence in his own abilities (hypothesis I-1b).

Increased ability to finance the costs of higher education. In recent years a large number of surveys have suggested that financial barriers prevent many talented students from going to college. In one such study -- the Educational Testing Service's survey (2) of 32,750 students, selected to be representative of the nation's high school seniors -- it was reported that among students in the top 30 per cent of the ability continuum, 46 per cent of the boys and 50 per cent of the girls not planning to go to college mentioned as one of their reasons, "It would cost more than my family can afford." Presumably any event which helps in circumventing these financial barriers will increase the student's disposition to seek advanced training (hypothesis D-2). Fortunately, public recognition for outstanding performance in scholarship competitions seems to motivate not only the students but other scholarship donors as well. Holland and Stalnaker report that approximately 65 per cent of the near-winners in the first Merit Scholarship program were successful in obtaining scholarships from other sources (7). Similarly, Thistlethwaite found that about 60 per cent of the near-winners in the second Merit program who attended college received scholarships (11). Students who rank high in any well-publicized testing program become highly visible; as a consequence they frequently attract offers of assistance from colleges and other sources. Since the majority of these offers come from colleges, and since many colleges make scholarship awards on the basis of need, one would expect these effects to be greater among students from lower socio-economic levels and among students attending high-cost colleges (hypotheses I-2a,b).

Increased ability to gain admission to preferred colleges. It is assumed that students who succeed in enrolling in the colleges and curricula of their choice are more likely to maintain the interest and motivation necessary to pursue their studies than those who find it necessary to enroll in nonpreferred institutions or curricula (hypothesis D-3). Obviously it is more difficult to gain admission to some colleges than to others. In a recent study of College Board institutions, Natalie Rogoff reported that there are nine colleges "where there are at least seven times as many applicants as available places, and which could, theoretically, fill their freshman class at least three times over without going below the median aptitude (of admitted applicants)" (10). A student who applies to a college which is popular among talented students may have difficulty getting admitted, whereas one who applies to a college where the competition for admission is not as great should have less difficulty. It is hypothesized that recognition of the type discussed here will open doors primarily for the former. The latter presumably will gain admission regardless of whether or not he receives recognition. It is assumed that colleges which have the greatest excess of applicants tend to be relatively high-cost institutions and that students from higher socio-economic levels apply to such institutions more frequently than do students from lower socio-economic levels (hypotheses I-3a,b).

The opposed directions of interaction hypotheses 2a and 3a suggest that no simple relation will be found between socio-economic status and the effectiveness of recognition in increasing motivation to seek advanced training. Recognition should make students with limited financial resources more able to pay college costs, but it should help relatively well-to-do students get admitted to the college of their choice. Since both abilities are hypothesized to be positively related to motivation to seek advanced training, socio-economic status should not differentiate between recipients who plan or do not plan to seek advanced degrees.

Increased social support for intellectual achievement. At present only anecdotal evidence is available to illustrate the possible effects of social recognition upon the recipient's parents, teachers, and peers (hypothesis D-4). The mother of one participant receiving recognition in the Merit program wrote, "It (the award) made us realize that we should make every effort possible to see that ___ secured a college education" (7). One student reported, "It gave the principal and faculty the surprise of their lives." Another said, "It increased standing among my friends." Supposedly, recognition will have the greatest impact upon others when the recipient's achievement is unexpected and his educational plans uncertain (hypotheses I-4a,b).

A Study of Effects of Recognition upon Talented Students

To test the generalizations, a survey of near-winners in the third National Merit Scholarship program was made. The hypotheses tested concern only effects upon recipients. Those dealing with social support from others (D-4 and I-4a,b) are excluded, since an adequate test would require surveying the parents, teachers, and peers of students receiving recognition.

Sample

The survey was mailed to all near-winners in the 1958 Merit competition who received the Certificate of Merit award. This honorary award, which carries no stipend, attests to the student's "high potential for college achievement" as demonstrated by his "distinguished performance on the nationwide selection tests for Merit Scholarships." Each of these students had his name published in a booklet distributed to all accredited junior and senior colleges, to a large number of other scholarship granting agencies, and to many newspapers.[2]

The C of M winners surveyed represent an extremely talented group. Ninety-five per cent had scores on the verbal section of the College Entrance Examination Board's Scholarship Qualifying Test (SQT) which placed them in the top two per cent of the nation's high school seniors (1). On the quantitative section of the SQT two-thirds of the group had scores which placed them in the top two per cent of the senior population.

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[2] A count of press clippings following the announcement of C of M winners shows that over 2,800 news items appeared in newspapers throughout the country describing these students.

Responses were received from 5,937, or 94 per cent, of the C of M winners. The questionnaires, completed during the school year following graduation from high school, indicated that approximately 97 per cent of the respondents had enrolled in college immediately. Another one per cent were enrolled in noncollege courses. Only about two per cent had discontinued their schooling. Since a greater proportion of "late" than "early" respondents discontinued their schooling, it is assumed that the drop-out rate among nonrespondents is greater. How much greater it is impossible to say. At least 2 per cent, but certainly no more than 8 per cent, of the total group of C of M winners discontinued their schooling. Undoubtedly many of the boys who entered military service plan to go to college later.

The college enrollments of the students receiving the honorary award reveal the same concentration in a relatively small number of colleges that enrollments of previous Merit finalists exhibited (6). About 44 per cent of the near-winners who enrolled in college are attending one of the 30 institutions most popular among these students, though the 30 schools enrolled only about 6 per cent of all first-time degree-credit students in Fall, 1958 (5). Fifty-six per cent of the respondents, and 57 per cent of the college entrants, reported they held freshman scholarships, with a median value of $607.

Most of the C of M winners say they plan to major in science. Among those enrolling in college immediately, 58 per cent plan to major in one of the natural or social sciences, 29 per cent in nonscience fields, and 13 per cent are undecided. Engineering, physics, mathematics, and chemistry are the most popular fields of study -- together they claim about 4 out of every 10 of these students. English, education, and history are the most popular nonscience fields, attracting one out of every 8 of the college entrants.

Method

Hypothesized changes in dispositions as a consequence of recognition were assessed by retrospective appraisals of the effects of winning the C of M award. The question, "How did winning a C of M help you?," was followed by seven fixed alternative responses and a probe for free responses. Response alternatives were as follows: (a) led to unsolicited scholarship offers, (b) helped me in getting scholarship aid, (c) helped me to evaluate my abilities, (d) increased my self-confidence or self-esteem, (e) helped me to get admitted to a preferred college, (f) increased my desire for advanced training (M.A., Ph.D., M.D., etc.), (g) no effects, (h) other effects (what?). Note that alternative (f), which was used to assess changes in motivation to seek advanced training, refers to plans to complete graduate and professional training. In interpreting the results it is important to keep in mind that some students may be more responsive than others. To the extent that some respondents are disposed to check numerous alternatives, while others are disposed to check none, it is possible that the observed relationships between reported changes in dispositions may reflect response bias. Consequently tests of the dispositional hypotheses are not definitive.

To test the interaction hypotheses, students were divided into groups using attributes derived from test records and from information available from their participation in the scholarship competition, and the questionnaire responses of

the different groups were compared. Socio-economic status was assessed by three indices: net annual income of parents before taxes (estimated from the Parents' Confidential Statement provided by the College Scholarship Service), principal's report of the proportion of the high school's graduating class going to college, and type of high school attended (private, independent schools vs. public schools and Catholic schools). College costs were estimated from budgets provided by each institution for the school year 1959-60. No information was available on the testing and guidance programs available in each secondary school, but an approximate index of exposure to previous testing opportunities was devised by classifying states with respect to the presence or absence of state testing programs as reported in a recent survey by the Educational Testing Service (3).

Results

Only data relevant to the hypotheses will be discussed. For convenience the same organization of evidence used in the preceding section is followed here.

Self Evaluations. D-1 predicts that recognition will increase motivation to seek advanced training when it leads to improved evaluation of self relative to others. Recipients who report that the award helped them to evaluate their abilities or that it increased their self-confidence should therefore exhibit greater changes in educational motivation than those who report no changes in self-evaluative attitudes. Table 1 shows that these predictions were confirmed.

The three interaction hypotheses specify some of the conditions under which recognition will produce changes in the individual's self-concept. Assuming that secondary schools in states with state-wide testing programs provide students with more opportunities for evaluating their abilities, changes in self-evaluative attitudes should be less frequent in such states than in states having no state-wide program. Table 2 confirms this hypothesis (I-1a). Undoubtedly the magnitude of this interaction effect is underestimated since the presence or absence of a state-wide testing program is a very crude index of the testing opportunities available in the high school.

To test the prediction that "late bloomers" will be more affected by recognition than students with consistently good performances in high school (hypothesis I-1b), a 14 per cent random sample of all respondents was studied. Students with percentile ranks (in high school class) of 95 or less were compared with those whose ranks were greater than 95. The results, shown in Table 3, indicate that the group with lower ranks more frequently reported that recognition increased their self-confidence or self-esteem; there was however no difference in the proportions of the two groups who believed the award helped them to evaluate their ability. The hypothesis was therefore only partially confirmed. One might expect that as a result of classifying students into "high" or "low" groups relative to percentile rank in high school class, the former would have higher aptitude scores than the latter. However, high-rank and low-rank groups had mean SQT scores (verbal plus quantitative subscores) of 100 and 99, respectively. This small difference indicates that there is virtually no correlation between high school rank and total aptitude score for these students. Consequently the observed difference between the two groups is not spuriously inflated by differences in aptitude.

In determining cutting scores for recognition awards in the Merit program, scores on the verbal part are weighted twice as heavily as scores on the mathematical part. As a consequence, students with minor deficiencies in mathematical training or skill may achieve recognition by outstanding performance on verbal items. In Table 4, students have been classified according to the magnitude of their scores on the mathematical items of the SQT. As predicted by hypothesis I-1c, students having lower mathematical scores tend to report greater changes in self concepts.

Ability to Pay College Costs. D-2 predicts that recognition will increase the recipient's motivation to seek advanced training when it leads to increased ability to finance college training. If we compare the educational plans of students whose financial ability changed (e.g., who received scholarships) with those of students whose financial status did not change (e.g., who did not win scholarships) the former should exhibit more frequent changes in educational plans.

Two indices were available to assess changes in ability to finance the costs of higher education: first, the student's subjective estimate of whether the recognition award helped him in getting scholarship aid (although it was recognized that many students do not have accurate knowledge about this question); second, the student's report of whether he held a freshman scholarship -- a more objective measure of change in ability to pay college costs but at the same time a measure which undoubtedly reflects some changes which are not the consequence of recognition. Table 5 shows that hypothesis D-2 is confirmed when the former is used to classify students, but unconfirmed when the latter is used.

Although the ambiguity of these tests of the hypothesis may be due to imperfections in the measures used to assess changes in financial status, it appears that among near-winners in the Merit program changes in educational plans are not closely connected with changes in ability to pay college costs. The interaction hypotheses suggest why this may be true. Recognition should increase the recipient's ability to finance college costs by helping him to win a scholarship both when he comes from a relatively low-income family and when he desires to attend a high-cost college. However, it seems likely that the majority who apply to high-cost institutions come from relatively well-to-do families. In short, recognition may help two different types of students to win scholarships: first, those from poor families who cannot attend college without assistance, and second, those from families with better than average incomes who want to attend high-cost colleges but who will enroll in college even though they do not win scholarships. Changes in the ability of the former group to pay college costs presumably will affect their dispositions to seek advanced training but such changes will be less critical for the latter, and to the extent that most near-winners are from relatively well-to-do families the hypothesized relationship should not be clearly manifested in these data.

Table 6 shows that regardless of which index of socio-economic status we use, low-income students benefit more from recognition than do high-income students with respect to change in ability to finance college. These results clearly confirm hypothesis I-2a.

The prediction (hypothesis I-2b) that effects would be greater among students attending high-cost colleges was also confirmed. Table 7 shows that changes in ability to finance college, as indicated by subjective student reports and by success in winning scholarships, occur more frequently among students going to high-cost colleges, particularly when the student is from a low-income family.

Ability to Gain Admission to Preferred College. Does the student who is helped to enter the school he prefers aim higher than the student who does not get admitted to the college of his choice? Hypothesis D-3 predicts that he will. Unfortunately, students have little or no basis for determining whether the recognition award helped them to get admitted to their college. Furthermore, the survey did not provide any information on whether the student was denied admission to the college of first choice. As a consequence, the data do not provide an unambiguous test of the hypothesis.

Students who reported that the award helped them to gain admission to a preferred college were compared with those who did not report such effects. Although a slightly greater proportion of the former reported increased motivation to seek advanced training, the difference was not significant (Table 8) and hypothesis D-3 was not confirmed. It should be remembered that since we are dealing with a very exceptional group, it is possible that very few of these students were denied admission to the colleges at which they applied.

Despite these ambiguities, interaction hypotheses 3a and 3b were confirmed. Table 9 shows that students from higher socio-economic levels more frequently report that recognition helped them to gain admission to a preferred college. Also, as predicted, this increase in ability to gain admission occurs primarily among students who initially wanted to go to a high-cost institution (Table 10).

Discussion

To summarize, tests have been reported for three of the four dispositional hypotheses and for seven of the nine interaction hypotheses. Of the 10 hypotheses tested, seven were clearly confirmed, two were partially confirmed, and one was unconfirmed. Since it is impossible to control response biases in retrospective appraisals, the tests cannot be considered rigorous; however the results suggest that law-like statements about the effects of recognition can be formulated and confirmed.[3]

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[3] More rigorous tests of these generalizations would require measures of dispositions both before and after recognition, and -- ideally -- two comparable groups, one exposed and the other not exposed to recognition. Unfortunately the requirements of a good experimental design and those of recognizing excellence tend to conflict, since the former calls for random assignment of subjects to treatments while the latter calls for selection by achievement. In such situations ex post facto or quasi-experimental designs seem to be the most useful research approach (see, e.g., references 12 and 13).

It has already been pointed out that the two classes of hypotheses differ in the degree to which they are linked with environmental events: the dispositional hypotheses, which relate hypothetical processes, are obviously the more difficult to test. Hovland and his collaborators (8, pp. 72-73) and Peak (9, p. 279) have discussed the methodological difficulty. In this situation we assume a causal relation between two dispositions, but since the dispositions are in each case inferred from behavior we cannot vary independently the variables in the hypothetical causal relationship. For example, we have found that recognition produces improved evaluation of self relative to others and that such changes in self-concepts are accompanied by increased motivation to seek advanced training; but it is impossible to demonstrate that the change in motivation was caused by improved self-evaluations rather than being produced by recognition directly. At best we can only demonstrate that the two dispositions vary concomitantly across subjects, and that they vary in the same manner with variations in antecedent conditions.

If it is true that "dispositional" hypotheses lead to such difficulties, why do we not abandon them and concentrate on lower-order generalizations? Primarily because we value parsimony in science and believe that it can be achieved only by the introduction of concepts which allow one to deal with a variety of antecedent conditions. If hypotheses containing such concepts can be formulated, we are in a better position to integrate new knowledge about the manner in which recognition effects vary with different antecedent conditions. In other words, a theory allows for greater economy of description than does an enumeration of lower-order generalizations, and it is more generalizable and suggestive of applications to new situations.

The present theory is limited to the effects of recognition upon the recipient recipient's motivation to seek advanced training. As already suggested, an important area for further inquiry and theory construction is effects upon people other than recipients, since the recognition of excellence may serve to create images which stimulate others. Furthermore, other changes in the behavior of the recipient as a consequence of recognition should be studied.

A number of leads are provided by the volunteered responses of students when asked to describe other effects of winning recognition. These side-effects, which can now only be demonstrated by anecdotal comments, include: (a) modeling behavior among others ("has acted as a challenge to two younger brothers"), (b) choice of more stimulating colleges ("caused me to choose a more difficult college"; "made me decide to apply to higher ranked schools than I had previously considered"), (c) increased scholastic motivation ("made me realize I couldn't be satisfied with average grades"; "gave me added incentive to study"), (d) advanced placement in college courses ("helped me to get admitted to Freshman Honors Program"; "was placed in accelerated program at ___"), (e) increased community interest in education ("was complimented and congratulated by prominent people of the city"; "increased public interest in local education").

Despite the fact that none of these students won National Merit scholarships, there were relatively few negative reactions reported. The most frequent negative side-effect, reported by slightly less than one per cent of the respondents, was that recognition made them feel over-confident (e.g., "winning recognition made me

feel I was smart enough to coast"; "made me so overconfident I neglected to apply for other scholarships"). Only two students complained of difficulty in peer relations following recognition ("gave me the harmful reputation of an intellectual oddball").

A theory of the effects of social recognition upon the plans of talented students to seek advanced training has been presented and some of its hypotheses have teen tested. Motivation to seek an advanced degree is postulated to be a function of four dispositions: evaluation of self relative to others, ability to finance the costs of higher education, ability to gain admission to preferred educational programs, and perception of social support among others for intellectual achievement. Each of these dispositions is hypothetically related to characteristics of the recipient of recognition. The majority of the predictions derived from the theory were confirmed in a study of the effects of recognition in a national scholarship competition.

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Table 1

Change in Motivation to Seek Advanced Training as a Function of Change in Self-Concept

Self-Evaluative Attitudes	Number of subjects	Per cent who report increased motivation to seek advanced training as a result of recognition	Per cent diff.	p*
1. Evaluation of abilities				
Ss reporting that award helped them to evaluate their abilities	2,363	30.3	18.0	<.01
Ss not reporting that award helped them to evaluate their abilities	3,574	12.3		
2. Self-confidence				
Ss reporting that award increased their self-confidence or self-esteem	3,430	25.7	14.8	<.01
Ss not reporting any change in self-confidence or self-esteem	2,507	10.9		

* Two-tailed tests have been used in this, and in succeeding, tables to estimate probability values.

Table 2

Change in Self-Evaluative Attitudes and Opportunity to Participate in State-Wide Testing Programs

Classification	Number of subjects	Per cent who report that winning a C of M helped them to evaluate their abilities	Per cent diff.	p
In states with state-wide testing program	2,758	37.6	4.1	<.01
In states with no state-wide testing program	3,179	41.7		

Table 3

Change in Self Concept as a Function of Previous Scholastic Achievement

Previous scholastic achievement	Number of subjects	Response: S reports that award helped in evaluating abilities — Per cent	Per cent diff.	Response: S reports that award increased self-confidence or self-esteem — Per cent	Per cent diff.
Moderate achievement (Ss with high school percentile ranks of 95 or less)	421	38.5		62.0	
			-.2		8.7*
Outstanding achievement (Ss with high school percentile ranks greater than 95)	437	38.7		53.3	

* P <.02

Table 4

Change in Self-Concept and Deficiencies in Mathematical Skills

Mathematical ability	Number of subjects‡	Response: S reports that award helped in evaluating abilities — Per cent	Per cent diff.	Response: S reports that award increased self-confidence or self-esteem — Per cent	Per cent diff.
Moderate ability (SQT-M of 55 or less)	3,891	43.5		61.2	
			10.9*		9.9*
High ability (SQT-M greater than 55)	1,992	32.6		51.3	

‡ The number of subjects in this, and in succeeding, tables vary slightly because of incomplete records.

* P <.01

Table 5

Change in Motivation to Seek Advanced Training as a Function of Increased Ability to Pay College Costs

Change in ability to pay college costs	Number of subjects	Per cent who report increased motivation to seek advanced training as a result of recognition	Per cent diff.	p
1. Subjective evaluations				
Ss reporting that award helped to obtain scholarship aid	1,883	23.6	6.1	<.01
Ss not reporting that award helped in getting scholarship aid	4,054	17.5		
2. Success in winning scholarship				
Ss holding freshman scholarship	3,310	20.1	1.4	ns
Ss not holding freshman scholarship	2,627	18.7		

Table 6

Effects upon Success in Obtaining Scholarship Aid as a Function of Socio-Economic Status of Recipient

Indices of socio-economic status	Number of subjects	Response: S reports that award helped in getting scholarship aid — Per cent	Per cent diff.	Response: S reports that he holds a freshman scholarship — Per cent	Per cent diff.
1. Family income:					
Less than $7,000 per year	1,710	47.8	25.2*	78.6	35.5*
$7,000 or more per year‡	3,489	22.6		43.1	
2. Proportion of graduating class going to college:					
Less than 70 per cent	3,689	37.1	14.6*	63.0	19.7*
70 per cent or more	2,026	22.5		43.3	
3. Type of high school attended:					
Public or Catholic	5,305	33.2	14.1*	58.6	26.3*
Private, independent	629	19.1		32.3	

‡ Students who requested the minumum stipend are classified as having family incomes of more than $7,000.

* p <.01

Table 7
Effects upon Success in Winning Scholarships as a Function of Cost of College Attended

Type of College Attended	Number of subjects	Response: S reports that award helped in getting scholarship aid — Per cent	Per cent diff.	S reports that he holds a freshman scholarship — Per cent	Per cent diff.
1. Low-income group (less than $7,000 per year)					
High-cost college ‡	755	56.2	12.2*	89.1	12.4*
Low-cost college	618	44.0		76.7	
2. High-income group ($7,000 or more per year)					
High-cost college	2,147	24.6	6.4*	44.1	2.3
Low-cost college	988	18.2		41.8	

‡ Colleges with budgets of $1,700 or more were classified as "high-cost" colleges. Budget estimates include tuition, fees, room and board, and $400 for miscellaneous expenses.

* $p < .01$

Table 8
Change in Motivation to Seek Advanced Training as a Function of Change in Ability to Gain Admission to Preferred Educational Institutions

Effect upon ability to gain admission to preferred college	Number of subjects	Per cent who report increased motivation to seek advanced training as a result of recognition	Per cent diff.	p
Ss reporting that award helped them to get admitted to a preferred college	1,967	20.1		
			1.0	ns
Ss not reporting that award helped them to get admitted to a preferred college	3,970	19.1		

Table 9

Change in Ability to Gain Admission to Preferred College as a Function of Socio-Economic Status

Indices of socio-economic status	Number of subjects	Per cent who report that award helped to get admitted to a preferred college	Per cent diff.	p
1. Family income:				
Less than $7,000 per year	1,710	24.7	12.8	<.01
$7,000 or more per year	3,489	37.5		
2. Proportion of graduating class going to college:				
Less than 70 per cent	3,689	28.9	11.3	<.01
70 per cent or more	2,026	40.2		
3. Type of high school attended:				
Public or Catholic	5,305	31.8	11.9	<.01
Private, independent	629	43.7		

Table 10

Change in Ability to Gain Admission to Preferred College as a Function of Preference for a High-Cost Institution

Initial College Choice	Number of subjects	Per cent who report that award helped to get admitted to a preferred college	Per cent diff.	p
High-cost institution ‡	3,552	42.1	22.9	<.01
Low-cost institution	1,669	19.2		

‡See footnote to Table 7.